
STANDARD CAPACITANCE TVS ARRAY

APPLICATIONS

- ✓ Cellular Phones
- ✓ MP3 Players
- ✓ Personnal Digital Assistant (PDA)
- ✓ Notebooks
- ✓ Digital Cameras

IEC COMPATIBILITY (EN61000-4)

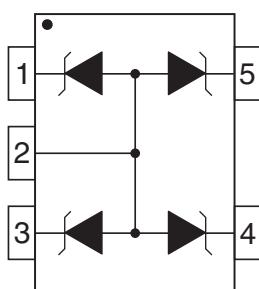
- ✓ 61000-4-2 (ESD): Air - 15kV, Contact - 8kV
- ✓ 61000-4-4 (EFT): 40A - 5/50ns


FEATURES

- ✓ 100 Watts Peak Pulse Power per Line (tp=8/20μs)
- ✓ Available in 2 Voltages: 5V & 12V
- ✓ Up to Four (4) Lines of Protection
- ✓ ESD Protection > 25 kilovolts
- ✓ Low Clamping Voltage

MECHANICAL CHARACTERISTICS

- ✓ Molded JEDEC SC-70-4L Package
- ✓ Weight 14 milligrams (Approximate)
- ✓ Flammability rating UL 94V-0
- ✓ 8mm Tape and Reel Per EIA Standard 481
- ✓ Marking: Marking Code & Pin One Defined By DOT on Package

PIN CONFIGURATIONS


DEVICE CHARACTERISTICS

MAXIMUM RATINGS @ 25°C Unless Otherwise Specified

PARAMETER	SYMBOL	VALUE	UNITS
Peak Pulse Power ($t_p = 8/20\mu\text{s}$) - See Figure 1	P_{PP}	100	Watts
Operating Temperature	T_J	-55°C to 150°C	°C
Storage Temperature	T_{STG}	-55°C to 150°C	°C
Forward Voltage @ 1A, 8/20μs	V_{FP}	1.5	Volts

ELECTRICAL CHARACTERISTICS PER LINE @ 25°C Unless Otherwise Specified

PART NUMBER	DEVICE MARKING CODE	RATED STAND-OFF VOLTAGE V_{WM} VOLTS	MINIMUM BREAKDOWN VOLTAGE (See Note 1) @ 1mA $V_{(BR)}$ VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ $I_p = 1A$ V_c VOLTS	MAXIMUM CLAMPING VOLTAGE (See Fig. 2) @ 8/20μs V_c @ I_{PP}	MAXIMUM LEAKAGE CURRENT @ V_{WM} I_d μA	MAXIMUM CAPACITANCE @ 0V, 1 MHz C_J pF
PSMF05	05	5.0	6.0	9.5	12.0V @ 9.0A	10	60
PSMF12	12	12.0	13.3	15.0	22.0V @ 5.0A	1	30

Note 1: Test between pins 1 to 2, 3 to 2, 4 to 2 and 5 to 2.

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

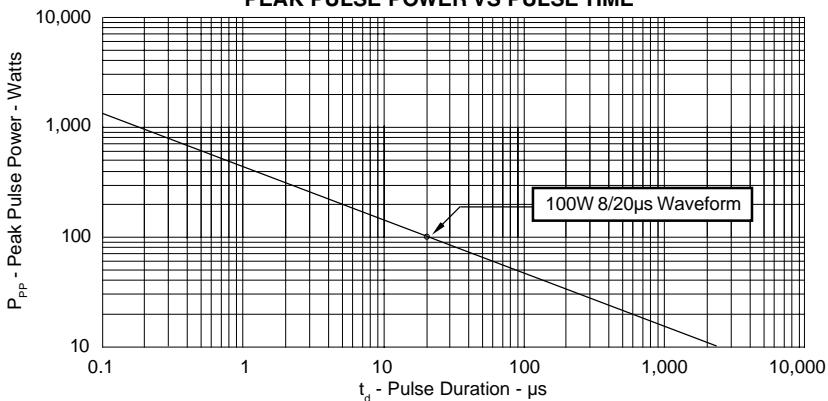
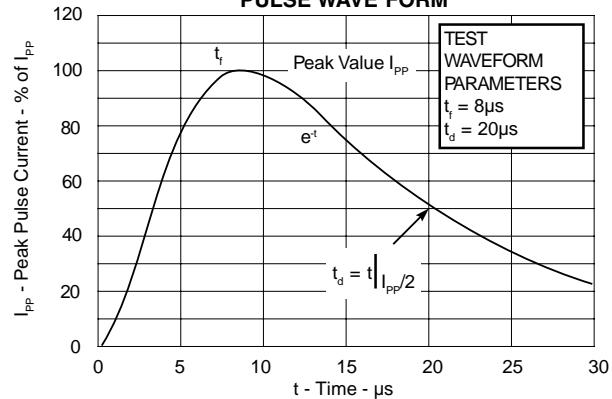
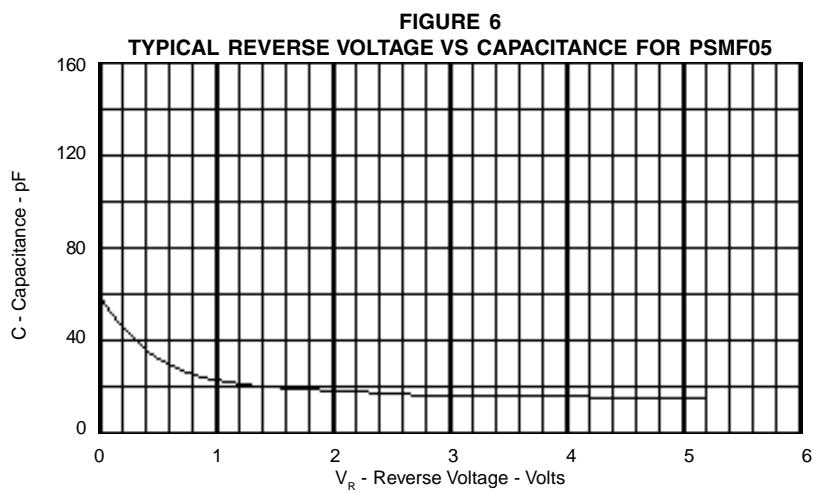
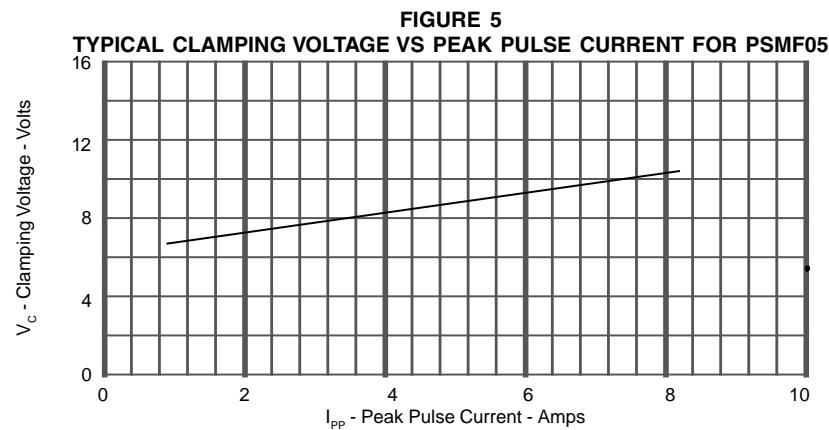
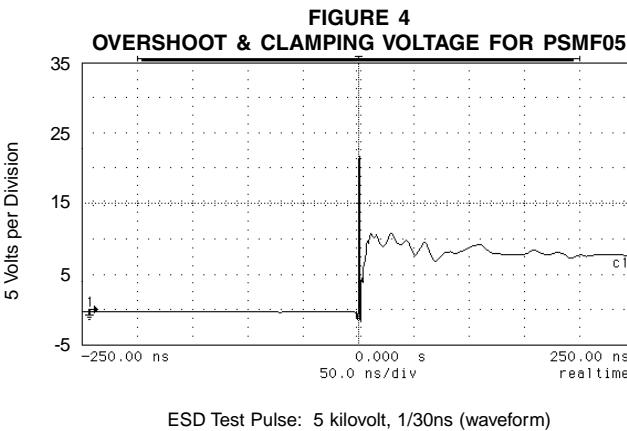
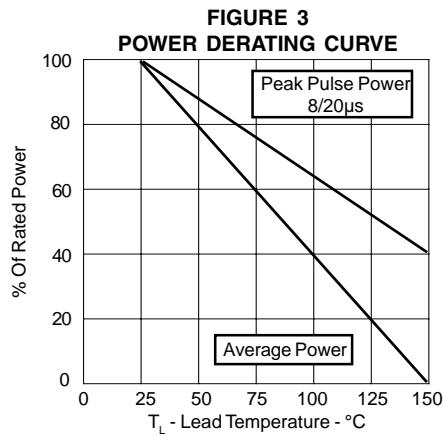


FIGURE 2
PULSE WAVE FORM



GRAPHS



APPLICATION NOTE

The PSMF Series are TVS arrays designed to protect I/O or data lines from the damaging effects of ESD or EFT. This product provides unidirectional protection, with a surge capability of 200 Watts P_{PP} per line for an 8/20 μ s waveform and ESD protection > 25 kilovolts.

UNIDIRECTIONAL COMMON-MODE CONFIGURATION (Figure 1)

The PSMF Series provides up to four (4) lines of protection in a common-mode configuration as depicted in Figure 1. Circuit connectivity is as follows:

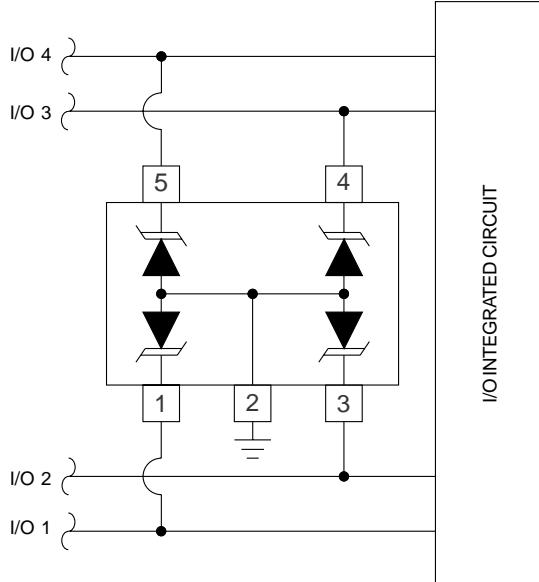
- ✓ I/O 1 is connected to Pin 1.
- ✓ I/O 2 is connected to Pin 3.
- ✓ I/O 3 is connected to Pin 4.
- ✓ I/O 4 is connected to Pin 5.
- ✓ Pin 2 is connected to ground.

CIRCUIT BOARD LAYOUT RECOMMENDATIONS

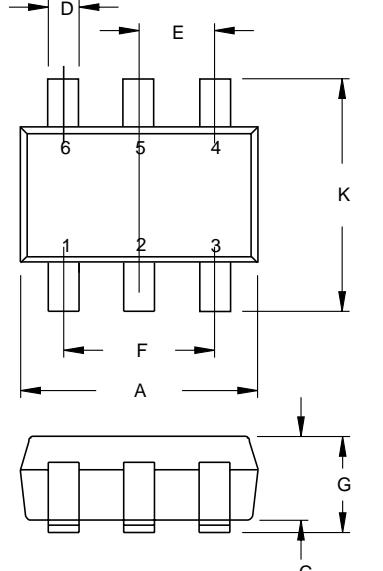
Circuit board layout is critical for Electromagnetic Compatibility (EMC) protection. The following guidelines are recommended:

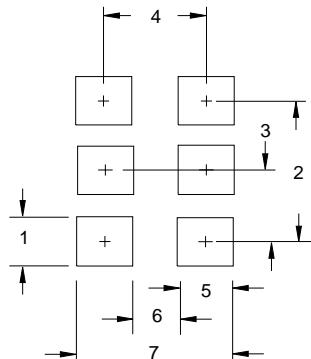
- ✓ The protection device should be placed near the input terminals or connectors, the device will divert the transient current immediately before it can be coupled into the nearby traces.
- ✓ The path length between the TVS device and the protected line should be minimized.
- ✓ All conductive loops including power and ground loops should be minimized.
- ✓ The transient current return path to ground should be kept as short as possible to reduce parasitic inductance.
- ✓ Ground planes should be used whenever possible. For multilayer PCBs, use ground vias.

Figure 1 - Unidirectional Configuration
Common-Mode I/O Port Protection



PACKAGE OUTLINE & DIMENSIONS

PACKAGE OUTLINE		SC70-6L		
				
PACKAGE DIMENSIONS				
DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.90	2.15	0.074	0.084
B	1.15	1.35	0.045	0.055
C	0.80	1.00	0.031	0.040
D	0.15	0.30	0.006	0.012
E	0.65 BSC	-	0.0255 BSC	-
F	1.30 BSC	-	0.0512 BSC	-
G	0.80	1.10	0.031	0.043
J	0.08	0.25	0.003	0.010
K	2.00	2.20	0.078	0.086
L	0	0.10	0	0.004
M	0.26	0.46	0.010	0.018

MOUNTING PAD		NOTES																											
<table border="1"> <thead> <tr> <th colspan="3">TYPICAL</th> </tr> <tr> <th>DIM</th><th>Millimeters</th><th>Inches</th></tr> </thead> <tbody> <tr> <td>1</td><td>0.50</td><td>0.020</td></tr> <tr> <td>2</td><td>1.30</td><td>0.051</td></tr> <tr> <td>3</td><td>0.65</td><td>0.026</td></tr> <tr> <td>4</td><td>1.72</td><td>0.068</td></tr> <tr> <td>5</td><td>0.60</td><td>0.024</td></tr> <tr> <td>6</td><td>1.11</td><td>0.044</td></tr> <tr> <td>7</td><td>2.33</td><td>0.092</td></tr> </tbody> </table>		TYPICAL			DIM	Millimeters	Inches	1	0.50	0.020	2	1.30	0.051	3	0.65	0.026	4	1.72	0.068	5	0.60	0.024	6	1.11	0.044	7	2.33	0.092	<ol style="list-style-type: none"> Dimensioning and tolerances per ANSI Y14.5M, 1985. Controlling Dimension: Inches Dimensions are exclusive of mold flash and metal burrs.
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		TAPE & REEL ORDERING NOMENCLATURE <ol style="list-style-type: none"> Surface mount product is taped and reeled in accordance with EIA-481. Suffix-T7 = 7 Inch Reel - 3,000 pieces per 8mm tape, i.e., <i>PSMF05-T7</i>. Suffix-LF = Lead-Free, Pure Tin Plating, i.e., <i>PSMF05-LF-T7</i>. 																											
Outline & Dimensions: Rev 2 - 2/04, 06005																													

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